

Name Key

Date _____

Review for Quiz on Circles, Ellipses, and Hyperbolas. #2

Complete the following problems on loose leaf or in your notebook. It will be collected.

Write the equation of the circle using the given information.

1. Center: (5, 3) Radius: 8
2. Center: (-2, 6) Radius: $\sqrt{7}$
3. Ends of a diameter: (-10, 2) and (6, 4)
4. Center: (9, 3) Point on Circle: (5, 8)

Write the equation of the ellipse using the given information.

5. Endpoints of major axis: (2, 3), (-8, 3) Endpoints of minor axis: (-3, 5), (-3, 1)
6. Foci: (5, 0), (-5, 0) Endpoints of major axis: (10, 0), (-10, 0)
7. $2x^2 + 8x + y^2 - 16y = -52$
8. Center: (-2, 0) Vertex: (-2, 10) Focus: (-2, 8)

Write the equation of the hyperbola using the given information.

9. $9x^2 + 36x - y^2 + 10y + 2 = 0$
10. C(3, -2) ^{Vertical} Transverse Axis is 16 units long; Conjugate Axis is 20 units long
11. Vertices: (7, 4), (7, -24) Distance from Center to Focus = $10\sqrt{2}$
12. V(6, -5) V(-2, -5) F($2 \pm 2\sqrt{13}$, -5)

Graph #9 on graph paper and list the center, the foci, the vertices, and the equations of the asymptotes.

Graph #7 on graph paper and list the center and foci.

Rev #2 Circles, Ell, Hyp

1. $64 = (x-5)^2 + (y-3)^2$

2. $7 = (x+2)^2 + (y-6)^2$

3. $C\left(\frac{-10+6}{2}, \frac{2+4}{2}\right) (-2, 3)$

$$(x+2)^2 + (y-3)^2 = r^2$$

$$(6+2)^2 + (4-3)^2$$

$$64 + 1 = r^2$$

$$(x+2)^2 + (y-3)^2 = 65$$

4. $(x-9)^2 + (y-3)^2 = r^2$

$$(5-9)^2 + (8-3)^2 = r^2$$

$$16 + 25 = r^2 = 41$$

$$(x-9)^2 + (y-3)^2 = 41$$

5. $C(-3, 3)$

$$M\left(\frac{2+(-8)}{2}, \frac{3+3}{2}\right) (-3, 3)$$

Major axis along x

$$a = 5$$

$$b = 2$$

$$\frac{(x+3)^2}{25} + \frac{(y-3)^2}{4} = 1$$

6. $C(0, 0)$

$$M\left(\frac{5-5}{2}, \frac{0+0}{2}\right)$$

$$M(0, 0)$$

$C = 5$ major along x

$$a = 10$$

$$\frac{x^2}{100} + \frac{y^2}{75} = 1$$

$$100 = 25 + b^2$$

$$75 = b^2$$

$$7. \quad 2x^2 + 8x + y^2 - 16y = -52$$

$$2(x^2 + 4x + 4) + y^2 - 16y + 64 = -52 + 8 + 64$$

$$2(x+2)^2 + (y-8)^2 = 20$$

$$\frac{(x+2)^2}{10} + \frac{(y-8)^2}{20} = 1$$

Graph on graph paper

$$C(-2, 8)$$

$$a = \sqrt{20} = 2\sqrt{5} \approx 4$$

$$b = \sqrt{10} \approx 3$$

$$c = \sqrt{10} \approx 3$$

$$20 = 10 + c^2$$

$$10 = c^2$$

$$F(-2, 8 \pm \sqrt{10})$$

$$8. \quad C(-2, 0) \quad V(-2, 10) \quad F(-2, 8)$$

$$a = 10$$

$$100 = 64 + b^2$$

$$c = 8$$

$$36 = b^2$$

$$\frac{(x+2)^2}{36} + \frac{y^2}{100} = 1$$

moves along y

$$9. \quad 9x^2 + 36x - y^2 + 10y + 2 = 0$$

$$9(x^2 + 4x + 4) - (y^2 - 10y + 25) = -2 + 36 - 25$$

$$9(x+2)^2 - (y-5)^2 = 9$$

$$\frac{(x+2)^2}{1} - \frac{(y-5)^2}{9} = 1$$

$$C(-2, 5)$$

$$a = 1$$

$$b = 3$$

$$c = \sqrt{10} \approx 3$$

$$F(-2 \pm \sqrt{10}, 5)$$

$$y - 5 = \pm 3(x + 2)$$

$$V(-3, 5) \quad (-1, 5)$$

graph on graph paper

10. $a=8$ $b=10$

$$\frac{(y+2)^2}{64} - \frac{(x-3)^2}{100} = 1$$

11. $C(7, -10)$ $\left(\frac{7+7}{2}, \frac{4-24}{2}\right)$

$a=14$ $c=10\sqrt{2}$

move
along y

$$200 = 196 + b^2$$

$$4 = b^2$$

$$\frac{(y+24)^2}{196} - \frac{(x-7)^2}{4} = 1$$

12. $C(2, -5)$

$$\frac{6+2}{2}, \frac{-5+5}{2}$$

$a=4$

$$(2\sqrt{13})^2 = 16 + b^2$$

$b=$

$$52 = 16 + b^2$$

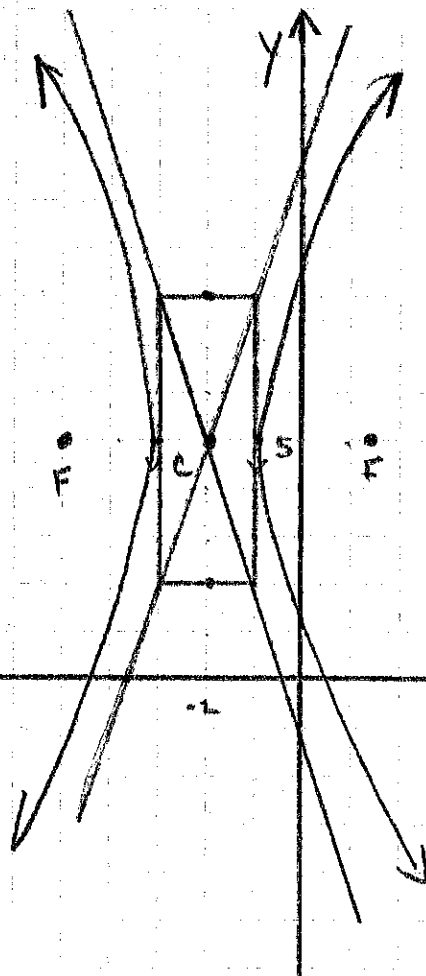
$c=2\sqrt{13}$

move along x

$$36 = b^2$$

$$\frac{(x-2)^2}{16} - \frac{(y+5)^2}{36} = 1$$

9.



7.

